

ecology and environment, inc.

**SITE-SPECIFIC
HEALTH AND SAFETY PLAN**

Project: Nicor Mercury

Project No.: _____

TDD/PAN No.: 505-0067-015 / 0U1501RZXX

Project Location: 710, 718, 720, and 802 S. Elmhurst Rd., Mt. Prospect, IL

Proposed Date of Field Activities: 7/25/00

Project Director: Dan Sewall, START Program Manager

Project Manager: William Sess

Prepared by: William Sess Date Prepared: 7/25/00

Approved by: [Signature] Date Approved: 7/25/00

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1. INTRODUCTION

1.1 POLICY

It is E & E's policy to ensure the health and safety of its employees, the public, and the environment during the performance of work it conducts. This site-specific health and safety plan (SHASP) establishes the procedures and requirements to ensure the health and safety of E & E employees for the above-named project. E & E's overall safety and health program is described in *Corporate Health and Safety Program for Toxic and Hazardous Substances* (CHSP). After reading this plan, applicable E & E employees shall read and sign E & E's Site-Specific Health and Safety Plan Acceptance form.

This SHASP has been developed for the sole use of E & E employees and is not intended for use by firms not participating in E & E's training and health and safety programs. Subcontractors are responsible for developing and providing their own safety plans.

This SHASP has been prepared to meet the following applicable regulatory requirements and guidance:

Applicable Regulation/Guidance
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER)
Other:

1.2 SCOPE OF WORK

Description of Work: _____

Equipment/Supplies: Attachment 1 contains a checklist of equipment and supplies that will be needed for this work.

The following is a description of each numbered task:

Task Number	Task Description
1	Air monitoring, reconnaissance, photography

1.3 SITE DESCRIPTION

Site Map: A site map or sketch is attached at the end of this plan.

Site History/Description (see project work plan for detailed description): NICOR gas contractor spilled mercury from old gas metering equipment while removing them from at least 4 homes. NICOR cleanup contractor have been cleaning up.

Is the site currently in operation? ☒ Yes ☐ No

Locations of Contaminants/Wastes: Elemental mercury spilled on floors of homes and has been vacuumed up by contractor.

Types and Characteristics of Contaminants/Wastes:

- ☒ Liquid ☐ Solid ☐ Sludge ☒ Gas/Vapor
☐ Flammable/Ignitable ☒ Volatile ☒ Corrosive ☒ Acutely Toxic
☐ Explosive ☒ Reactive ☐ Carcinogenic ☐ Radioactive
☐ Medical/Pathogenic Other: _____

2. ORGANIZATION AND RESPONSIBILITIES

E & E team personnel shall have on-site responsibilities as described in E & E's standard operating procedure (SOP) for Site Entry Procedures (GENTECH 2.2) The project team, including qualified alternates, is identified below.

Name	Site Role/Responsibility
William Sassy	Project/Task Manager
Vince Gree	Site Safety Officer
Brad Stimple	U.S. EPA OSC

3. TRAINING

Prior to work, E & E team personnel shall have received training as indicated below. As applicable, personnel shall have read the project work plan, sampling and analysis plan, and/or quality assurance project plan prior to project work.

Training	Required
40-Hour OSHA HAZWOPER Initial Training and Annual Refresher (29 CFR 1910.120)	X
Annual First Aid/CPR	X
Hazard Communication (29 CFR 1910.1200)	X
40-Hour Radiation Protection Procedures and Investigative Methods	

Training	Required
8-Hour General Radiation Health and Safety	
Radiation Refresher	
DOT and Biannual Refresher	
Other:	

4. MEDICAL SURVEILLANCE

4.1 MEDICAL SURVEILLANCE PROGRAM

E & E field personnel shall actively participate in E & E's medical surveillance program as described in the CHSP and shall have received, within the past year, an appropriate physical examination and health rating.

E & E's health and safety record (HSR) form will be maintained on site by each E & E employee for the duration of his or her work. E & E employees should inform the site safety officer (SSO) of any allergies, medical conditions, or similar situations that are relevant to the safe conduct of the work to which this SHASP applies.

Is there a concern for radiation at the site? ☐ Yes ☐ No

If no, go to 5.1.

4.2 RADIATION EXPOSURE

4.2.1 External Dosimetry

Thermoluminescent Dosimeter (TLD) Badges: TLD badges are required to be worn by all E & E field personnel on all E & E sites.

Pocket Dosimeters: N/A

Other: _____

4.2.2 Internal Dosimetry

☐ Whole body count

☐ Bioassay

☐ Other

Requirements: N/A

4.2.3 Radiation Dose

Dose Limits: E & E's radiation dose limits are stated in the CHSP. Implementation of these dose limits may be designated on a site-specific basis.

Site-Specific Dose Limits: N/A

ALARA Policy: Radiation doses to E & E personnel shall be maintained as low as reasonably achievable (ALARA), taking into account the work objective, state of technology available, economics of improvements in dose reduction with respect to overall health and safety, and other societal and socioeconomic considerations.

5. SITE CONTROL

5.1 SITE LAYOUT AND WORK ZONES

Site Work Zones: Refer to the map or site sketch, attached at the end of this plan, for designated work zones. The interior of each home to be considered hot zone.

Site Access Requirements and Special Considerations: arranged thru EPA

Illumination Requirements: Work to occur in daylight hours. Lighting in homes to be used.

Sanitary Facilities (e.g., toilet, shower, potable water): Public restrooms to be utilized. Potable water to be brought to site.

On-Site Communications: Verbal

Other Site-Control Requirements: _____

5.2 SAFE WORK PRACTICES

Daily Safety Meeting: A daily safety meeting will be conducted for all E & E personnel and documented on the Daily Safety Meeting Record form or in the field logbook. The information and data obtained from applicable site characterization and analysis will be addressed in the safety meetings and also used to update this SHASP, as necessary.

Work Limitations: Work shall be limited to a maximum of 12 hours per day. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g., rain, snow) will be approved by project management and the regional safety coordinator or designee.

Other Work Limitations: _____

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Eating, Drinking, and Smoking: Eating, drinking, smoking, and the use of tobacco products shall be prohibited in the exclusion and contamination reduction areas, at a minimum, and shall only be permitted in designated areas.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of personnel, equipment, and materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for

labeling, packaging, transportation, and other purposes.

Vermiculite Handling: Respiratory protection (i.e., high-efficiency particulate air filtration) is recommended when vermiculite is used to package samples into shipping containers (some vermiculite contains low concentrations of asbestos).

Other Safe Work Practices: Air monitoring to be conducted to ensure proper respiratory protection.

6. HAZARD EVALUATION AND CONTROL

6.1 PHYSICAL HAZARD EVALUATION AND CONTROL

Potential physical hazards and their applicable control measures are described in the following table for each task.

Hazard	Task Number	Hazard Control Measures
Biological (flora, fauna, etc.)		<ul style="list-style-type: none">• Potential hazard: _____• Establish site-specific procedures for working around identified hazards.• Other: _____
Cold Stress		<ul style="list-style-type: none">• Provide warm break area and adequate breaks.• Provide warm noncaffeinated beverages.• Promote cold stress awareness.• See <i>Cold Stress Prevention and Treatment</i> (attached at the end of this plan if cold stress is a potential hazard).
Compressed Gas Cylinders		<ul style="list-style-type: none">• Use caution when moving or storing cylinders.• A cylinder is a projectile hazard if it is damaged or its neck is broken.• Store cylinders upright and secure them by chains or other means.• Other: _____
Confined Space		<ul style="list-style-type: none">• Ensure compliance with 29 CFR 1910.146.• See SOP for Confined Space Entry. Additional documentation is required.• Other: _____
Drilling		<ul style="list-style-type: none">• See SOP for Health and Safety on Drilling Rig Operations. Additional documentation may be required.• Other: _____• Other: _____
Drums and Containers		<ul style="list-style-type: none">• Ensure compliance with 29 CFR 1910.120(j).• Consider unlabeled drums or containers to contain hazardous substances and handle accordingly until the contents are identified.• Inspect drums or containers and assure integrity prior to handling.• Move drums or containers only as necessary; use caution and warn nearby personnel of potential hazards.• Open, sample, and/or move drums or containers in accordance with established procedures; use approved drum/container-handling equipment.• Other: _____

Hazard	Task Number	Hazard Control Measures
Electrical		<ul style="list-style-type: none"> • Ensure compliance with 29 CFR 1910 Subparts J and S. • Locate and mark energized lines. • De-energize lines as necessary. • Ground all electrical circuits. • Guard or isolate temporary wiring to prevent accidental contact. • Evaluate potential areas of high moisture or standing water and define special electrical needs. • Other: _____
Excavation and Trenching		<ul style="list-style-type: none"> • Ensure that excavations comply with and personnel are informed of the requirements of 29 CFR 1926 Subpart P. • Ensure that any required sloping or shoring systems are approved as per 29 CFR 1926 Subpart P. • Identify special personal protective equipment (PPE) (see Section 7) and monitoring (see Section 8) needs if personnel are required to enter approved excavated areas or trenches. • Maintain line of sight between equipment operators and personnel in excavations/trenches. Such personnel are prohibited from working in close proximity to operating machinery. • Suspend or shut down operations at signs of cave in, excessive water, defective shoring, changing weather, or unacceptable monitoring results. • Other: _____ • Other: _____
Fire and Explosion		<ul style="list-style-type: none"> • Inform personnel of the location(s) of potential fire/explosion hazards. • Establish site-specific procedures for working around flammables. • Ensure that appropriate fire suppression equipment and systems are available and in good working order. • Define requirements for intrinsically safe equipment. • Identify special monitoring needs (see Section 8). • Remove ignition sources from flammable atmospheres. • Coordinate with local fire-fighting groups regarding potential fire/explosion situations. • Establish contingency plans and review daily with team members. • Other: _____
Heat Stress	1	<ul style="list-style-type: none"> • Provide cool break area and adequate breaks. • Provide cool noncaffeinated beverages. • Promote heat stress awareness. • Use active cooling devices (e.g., cooling vests) where specified. • See <i>Heat Stress Prevention and Treatment</i> (attached at the end of this plan if heat stress is a potential hazard).
Heavy Equipment Operation		<ul style="list-style-type: none"> • Define equipment routes, traffic patterns, and site-specific safety measures. • Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. • Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. • Identify special PPE (Section 7) and monitoring (Section 8) needs.
		<ul style="list-style-type: none"> • Ensure that field personnel do not work in close proximity to operating equipment.

Hazard	Task Number	Hazard Control Measures
		<ul style="list-style-type: none"> • Ensure that lifting capacities, load limits, etc., are not exceeded. • Other: _____
Heights (Scaffolding, Ladders, etc.)		<ul style="list-style-type: none"> • Ensure compliance with applicable subparts of 29 CFR 1910. • Identify special PPE needs (e.g., lanyards, safety nets, etc.) • Other: _____
Noise	1	<ul style="list-style-type: none"> • Establish noise level standards for on-site equipment/operations. • Inform personnel of hearing protection requirements (Section 7). • Define site-specific requirements for noise monitoring (Section 8). • Other: _____
Overhead Obstructions		<ul style="list-style-type: none"> • Wear hard hat. • Other: _____
Power Tools		<ul style="list-style-type: none"> • Ensure compliance with 29 CFR 1910 Subpart P. • Other: _____
Sunburn		<ul style="list-style-type: none"> • Apply sunscreen. • Wear hats/caps and long sleeves. • Other: _____
Utility Lines		<ul style="list-style-type: none"> • Identify/locate existing utilities prior to work. • Ensure that overhead utility lines are at least 25 feet away from project activities. • Contact utilities to confirm locations, as necessary. • Other: _____
Weather Extremes		<ul style="list-style-type: none"> • Potential hazards: _____ • Establish site-specific contingencies for severe weather situations. • Provide for frequent weather broadcasts. • Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.). • Identify special PPE (Section 7) needs. • Discontinue work during severe weather. • Other: _____
Other:		<ul style="list-style-type: none"> • _____ • _____
Other:		<ul style="list-style-type: none"> • _____ • _____

6.2 CHEMICAL HAZARD EVALUATION AND CONTROL

6.2.1 Chemical Hazard Evaluation

Potential chemical hazards are described by task number in Table 6-1. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

Table 6-1

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1	Mercury	0.05 mg/m3 Sk	0.05 mg/m3 Sk	0.05 mg/m3 Sk	Y	Inh, Ing, Eye, Skin	Headache, cough, chest pain, nausea	--- Odorless	---	---

KEY:

* = Chemical is a known or suspected carcinogen.

--- = Information not available

PEL = Permissible Exposure Limit

REL = Recommended Exposure Limit

TLV = Threshold Limit Value

C = Ceiling Limit

CGH = Cough

CNS = Central Nervous System Effects

DIZZ = Dizziness

E/N/I = Eyes/Nose/Throat

FA = Fatigue

F/CC = fibers per cubic centimeter

GD = Giddiness

G1 = Gastrointestinal Tract

HA = Headaches

INH = Inhalation

ING = Ingestion

IRR = Irritation

LFC = Lowest Feasible Concentration

LOC = Loss of Consciousness

MG/M3 = Milligrams per cubic meter

NAU = Nausea

PPM = Parts per million

PWP = Poor Warning Properties

URT = Upper Respiratory Tract

V = Vomiting

WK = Weakness

SK = Skin Notation

SP = Slow Pulse

STEL = Short Term Exposure Limit

6.2.2 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels (see Section 6.2.1).

Applicable Engineering/Administrative Control Measures:

Remove booties prior to leaving hot

Zone

PPE: See Section 7.

6.3 RADIOLOGICAL HAZARD EVALUATION AND CONTROL

6.3.1 Radiological Hazard Evaluation

Potential radiological hazards are described below by task number. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

Task Number	Radionuclide	DAC ($\mu\text{Ci/ml}$)	Route(s) of Exposure	Major Radiation(s)	Energy(s) (MeV)	Half-Life
N/A						

6.3.2 Radiological Hazard Control

Engineering/administrative controls and work practices shall be instituted to reduce and maintain employee exposures to a level at or below the permissible exposure/dose limits (see sections 4.2.3 and 6.3.1). Whenever engineering/administrative controls and work practices are not feasible or effective, any reasonable combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below permissible exposure/dose limits.

Applicable Engineering/Administrative Control Measures:

N/A

PPE: See Section 7.

7. LEVEL OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 LEVEL OF PROTECTION


The following levels of protection (LOPs) have been selected for each work task based on an evaluation of the potential or known hazards, the routes of potential hazard, and the performance specifications of the PPE. On-site monitoring results and other information obtained from on-site activities will be used to modify these LOPs and the PPE, as necessary, to ensure sufficient personnel protection. The authorized LOP and PPE shall only be changed with the approval of the regional safety coordinator or designee. Level A is not included below because Level A activities, which are performed infrequently, will require special planning and addenda to this SHASP.

Task Number	B	C	D	Modifications Allowed
1			X	boots, gloves

Note: Use "X" for initial levels of protection. Use "(X)" to indicate levels of protection that may be used as site conditions warrant.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The PPE selected for each task is indicated below. E & E's PPE program complies with 29 CFR 1910.120 and 29 CFR 1910 Subpart I and is described in detail in the CHSP. Refer to 29 CFR 1910 for the minimum PPE required for each LOP.

PPE	Task Number/LOP					
	1/A					
Full-face APR						
PAPR						
Cartridges:						
H						
GMC-H						
GMA-H						
Other: <i>Mertech</i>						
Positive-pressure, full-face SCBA						
Spare air tanks (Grade D air)						
Positive-pressure, full-face, supplied-air system						
Cascade system (Grade D air)						
Manifold system						
5-Minute escape mask						
Safety glasses	X					
Monogoggles						
Coveralls/clothing						
Protective clothing:						
Tyvek						
Saranex						

PPE	Task Number/LOP					
	1/D					
Other:						
Splash apron						
Inner gloves:						
Cotton						
Nitrile <i>N-Dex</i>	<i>X</i>					
Latex						
Other:						
Outer gloves:						
Viton						
Rubber						
Neoprene						
Nitrile						
Other:						
Work gloves						
Safety boots (as per ANSI Z41) <i>steel toe</i>	<i>X</i>					
Neoprene safety boots (as per ANSI Z41)						
Boot covers (type: <i>Latex or Vinyl</i>)	<i>X</i>					
Hearing protection (type: _____)						
Hard hat						
Face shield						
Other:						
Other:						

8. HEALTH AND SAFETY MONITORING

Health and safety monitoring will be conducted to ensure proper selection of engineering/administrative controls, work practices, and/or PPE so that employees are not exposed to hazardous substances at levels that exceed permissible exposure/dose limits or published exposure levels. Health and safety monitoring will be conducted using the instruments, frequency, and action levels described in Table 8-1. Health and safety monitoring instruments shall have been appropriately calibrated and/or performance-checked prior to use.

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels ^a	
<input type="checkbox"/> PID (e.g., HNu IS-101) <input type="checkbox"/> FID (e.g., OVA 128-GC)					Unknown Vapors Background to 1 ppm: Level D 1 to 5 ppm above background: Level C 5 to 500 ppm above background: Level B >500 ppm above background: Level A	Contaminant-Specific
Oxygen Meter/Explosimeter					Oxygen <19.5% or >22.0%: Evacuate area; eliminate ignition sources; reassess conditions. 19.5 to 22.0%: Continue work in accordance with action levels for other instruments.	Explosivity ≤10% LEL: Continue work in accordance with action levels for other instruments; monitor continuously for combustible atmospheres. >10% LEL: Evacuate area; eliminate ignition sources; reassess conditions.
Radiation Alert Monitor (Rad-mini or RAM-4)					<0.1 mR/hr: Continue work in accordance with action levels for other instruments. ≥0.1 mR/hr: Evacuate area; reassess work plan and contact radiation safety specialist.	
Mini-Ram Particulate Monitor					General/Unknown Evaluate health and safety measures when dust levels exceed 2.5 milligrams per cubic meter.	Contaminant-Specific
HCN/H ₂ S (Monitox)					≥4 ppm: Leave area and consult with SSO.	
Draeger Colorimetric Tubes					Tube	Action Level
Air Monitor/Sampler					Action	
Type: Permanence / <u>Termin</u> Sampling medium:	1	Mercury	Area	periodic	Action Level 0.05 mg/m ³	upgrade to Level C

Table 8-1					
HEALTH AND SAFETY MONITORING					
Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels ^a
Personal Sampling Pump Type: _____ Sampling medium: _____					Action Level Action
Micro R Meter					<2 mR/hr: Continue work in accordance with action levels for other instruments. 2 to 5 mR/hr: In conjunction with a radiation safety specialist, continue work and perform stay-time calculations to ensure compliance with dose limits and ALARA policy. >5 mR/hr: Evacuate area to reassess work plan and evaluate options to maintain personnel exposures ALARA and within dose limits.
Ion Chamber					See micro R meter action levels above.
Radiation Survey Ratemeter/Scaler with External Detector(s)					Detector Action Level Action
Noise Dosimeter (Sound Level Meter)					≤85 decibels as measured using the A-weighted network (dBA): Use hearing protection if exposure will be sustained throughout work shift. >85 dBA: Use hearing protection. >120 dBA: Leave area and consult with safety personnel.
Other:					
Other:					

^a Unless stated otherwise, airborne contaminant concentrations are measured as a time-weighted average in the worker's breathing zone. Acceptable concentrations for known airborne contaminants will be determined based on OSHA/NIOSH/ACGIH and/or NRC exposure limits. As a guideline, 1/2 the PEL/REL/TLV, whichever is lower should be used.

9. DECONTAMINATION PROCEDURES

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. Specific procedures are described below.

Equipment/Material Decontamination Procedures (specified by work plan): Wipe w/ wet paper towel or
w/ H₂O solution

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Personnel Decontamination Procedures: remove PPE. wash hands ASAP.

PPE Requirements for Personnel Performing Decontamination: nitrile or latex gloves.

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed as indicated in the work plan.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.): bag and leave on site
to be disposed by PRP (NICOR) contractor.

10. EMERGENCY RESPONSE

This section contains additional information pertaining to on-site emergency response and does not duplicate pertinent emergency response information contained in earlier sections of this plan (e.g., site layout, monitoring equipment, etc.). Emergency response procedures will be rehearsed regularly, as applicable, during project activities.

10.1 EMERGENCY RESPONSIBILITIES

All Personnel: All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SSO; and notify appropriate emergency resources, as necessary.

Team Leader: The team leader will determine the emergency actions to be performed by E & E personnel and will direct these actions. The team leader also will ensure that applicable incidents are reported to appropriate E & E and client project personnel and government agencies.

SSO: The SSO will recommend health/safety and protective measures appropriate to the emergency.

Other: _____

10.2 LOCAL AND SITE RESOURCES (including phone numbers)

Ambulance: 911

Hospital: Holy Family Med. Center, 100 N. River Rd., Des Plaines, IL

Directions to Hospital (map attached at the end of this plan): 847-297-1800

See attached route map w/directions.

Poison Control: _____

Police Department: 911 or 847-870-5656

Fire Department: 911

Client Contact: Bond Stimpfle, OSC, U.S. EPA, Chicago 312-886-0406 pager 800-617-1045

Site Contact: _____

On-Site Telephone Number: _____

Cellular Telephone Number: _____

Radios Available: _____

Other: _____

10.3 E & E EMERGENCY CONTACTS

E & E Emergency Response Center (24 Hours): 716/684-8940

Corporate Health and Safety Director, Dr. Paul Jonmaire: 716/684-8060 (office)
716/655-1260 (home)

Corporate Safety Officer, Tom Siener 716/684-8060 (office)
716/662-4740 (home)

Regional Safety Coordinator, Dean Tiebout: 312/578-9243 (office)
773/468-1670 (home)
312/370-2530 (pager)

Regional Officer Manager, ~~Jerome Oskvarek~~
Dan Sewall 312/578-9243 (office)
~~773/775-7040~~ (home)

708-246-9129

10.4 OTHER EMERGENCY RESPONSE PROCEDURES

On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): 3 blasts on car horn or verbal.

On-Site Assembly Area: near street in front of residence.

Emergency Egress Route to Get Off Site: Exit nearest door to home

Off-Site Assembly Area: Near street in front of house.

Preferred Means of Reporting Emergencies: _____

Site Security and Control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Emergency Decontamination Procedures: If decontamination does not interfere with essential treatment, wash affected area with soap and water and rinse with copious amounts of water. If decontamination can not be performed, wrap the affected person in blankets or plastic to reduce contamination of other personnel. Alert medical personnel to potential contamination and decon procedures, if necessary.

PPE: Personnel will don appropriate PPE when responding to an emergency situation. The SSO and Section 7 of this plan will provide guidance regarding appropriate PPE.

Emergency Equipment: Appropriate emergency equipment is listed in Attachment 1. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: Injuries/exposures should be reported to the Regional Safety Coordinator or the person's direct supervisor. The affected person (or RSC or supervisor if person is not able) must complete a form IR, which is to be submitted to the Personnel Dept. and to the Health and Safety Department in Buffalo as soon as possible. The injury/exposure should also be reported by telephone to Personnel.

**ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST**

INSTRUMENTATION	No.	EMERGENCY EQUIPMENT	No.
OVA		First aid kit	
Thermal desorber		Stretcher	
O ₂ /explosimeter w/cal. kit		Portable eye wash	
Photovac tip		Blood pressure monitor	
HNu (probe: _____ eV)		Fire blanket	
Magnetometer		Fire extinguisher	
Pipe locator		Thermometer (medical)	
Weather station		Spill kit	
Draeger tube kit (tubes: _____)			
Brunton compass			
Real-time cyanide monitor			
Real-time H ₂ S monitor			
Heat stress monitor			
Noise equipment		DECONTAMINATION EQUIPMENT	
Personal sampling pumps and supplies		Wash tubs	
MiniRam dust monitor		Buckets	
Mercury monitor		Scrub brushes	
Spare batteries (type: _____)		Pressurized sprayer	
		Spray bottle	
		Detergent (type: _____)	
RADIATION EQUIPMENT/SUPPLIES		Solvent (type: _____)	
Documentation forms		Plastic sheeting	
Portable ratemeter		Tarps and poles	
Scaler/ratemeter		Trash bags	
1" NaI gamma probe		Trash cans	
2" NaI gamma probe		Masking tape	
ZnS alpha probe		Duct tape	
GM pancake probe		Paper towels	
Tungsten-shielded GM probe		Face mask	
Micro R meter		Face mask sanitizer	
Ion chamber		Step ladders	
Alert monitor		Distilled water	
Pocket dosimeter		Deionized water	
Dosimeter charger			
Radiation warning tape			
Radiation decon supplies			
Spare batteries (type: _____)			

**ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST**

SAMPLING EQUIPMENT		MISCELLANEOUS (Cont.)	
8-oz. bottles		Gatorade or equivalent	
Half-gallon bottles		Tables	
VOA bottles		Chairs	
String		Weather radio	
Hand bailers		Two-way radios	
Thieving rods with bulbs		Binoculars	
Spoons		Megaphone	
Knives		Cooling vest	
Filter paper			
Bottle labels			
		SHIPPING EQUIPMENT	
		Coolers	
MISCELLANEOUS		Paint cans with lids, 7 clips each	
Pump		Vermiculite	
Surveyor's tape		Shipping labels	
100' Fiberglass tape		DOT labels:	
300' Nylon rope		"Up"	
Nylon string		"Danger"	
Surveying flags		"Inside Container Complies ..."	
Camera		Hazard Group	
Film		Strapping tape	
Bung wrench		Baggies	
Soil auger		Custody seals	
Pick		Chain-of-custody forms	
Shovel		Federal Express forms	
Catalytic heater		Clear packing tape	
Propane gas		Permanent markers	
Banner tape			
Surveying meter stick			
Chaining pins and ring			
Logbooks (____ large, ____ small)			
Required MSDSs			
Intrinsically safe flashlight			
Potable water			

ecology and environment, inc.

DAILY SAFETY MEETING RECORD

GENERAL INFORMATION

Project:

Project No:

TDD/PAN No.:

Project Location:

Date:

Time:

Weather:

Specific Location:

Planned Activities:

SAFETY TOPICS PRESENTED

Chemical Hazards Update:

Physical Hazards Update:

Radiation Hazards Update:

Review of Previous Monitoring Results:

Protective Clothing/Equipment Modifications:

Special Equipment/Procedures:

Drilling Safety Issues (including testing the operation of drill rig emergency stop switches):

Emergency Procedures:

Additional Topics/Observations:

Team Members' Comments/Suggestions:

Project:

Nickel Mercury

Project No.:

TDD/PAN No.:

505-0007-015/041501RZX

Project Location:

Project Manager:

Bill Fass

Project Director:

The undersigned acknowledge that they have read and understood and agree to abide by the health and safety plan.

Name (Printed)

Name (Signature)

Date _____

Name (Printed)
Todd Murphy

Name (Signature) Todd Murphy

8/24/00

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

PROCEDURES FOR SPILLS OR LEAKS

- 1 Absorb on sand or vermiculite and place in closed container for disposal.
- 2 Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors.
- 3 Shut off all sources of ignition.
- 4 Evacuate area.
- 5 Cover with an activated carbon adsorbent, take up and place in closed container. Transport outdoors.
- 6 Ventilate area and wash spill site after material pickup is complete.
- 7 Sweep up, place in a bag and hold for waste disposal.
- 8 Avoid raising dust.
- 9 Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
- 10 Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
- 11 Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal.
- 12 Carefully sweep up and remove.
- 13 Flush spill area with copious amounts of water.
- 14 Mix with solid sodium bicarbonate.
- 15 Place in appropriate container.
- 16 Wear protective equipment.
- 17 Wash spill site with soap solution.
- 18 Please contact the Technical Services Department. Be sure to mention the name and catalog number of the material.

FIRE-EXTINGUISHING MEDIA

- 1 Carbon dioxide.
- 2 Dry chemical powder.
- 3 Water spray.
- 4 Alcohol or polymer foam.
- 5 Class D fire-extinguishing material only.
- 6 Water may be effective for cooling, but may not effect extinguishment.
- 7 Carbon dioxide, dry chemical powder, alcohol or polymer foam.
- 8 Foam and water spray are effective but may cause frothing.
- 9 Do not use dry chemical powder extinguisher on this material.
- 10 Do not use carbon dioxide extinguisher on this material.
- 11 Noncombustible.
- 12 Do not use water.
- 13 Use extinguishing media appropriate to surrounding fire condition



HEAT STRESS PREVENTION AND TREATMENT

Elevated temperatures are potentially hazardous, especially when work is conducted without appropriate precautions. The following sections describe heat stress prevention and the recognition and treatment of heat emergencies.

Effects of Heat

A predictable amount of heat is generated as a result of normal oxidation processes within the body. If heat is liberated rapidly, the body cools to a point at which the production of heat is accelerated, and the excess heat brings the body temperature back to normal.

Interference with the elimination of heat leads to its accumulation and to the elevation of body temperature. This condition produces a vicious cycle in which certain body processes accelerate and generate additional heat. Afterward, the body must eliminate not only the heat that is normally generated but also the additional quantities of heat.

Most body heat is brought to the surface by the bloodstream and escapes to cooler surroundings by conduction and radiation. If moving air or a breeze strikes the body, additional heat is lost by convection. When the temperature of the surrounding air becomes equal to or rises above the body temperature, all the heat must be lost by vaporization of the moisture or sweat from skin surfaces. As the air becomes more humid (contains more moisture), vaporization from the skin decreases. Weather conditions including high temperatures (90 to 100 degrees F), high humidity, and little or no breeze cause the retention of body heat. Such conditions or a succession of such days (a heat wave) increase the chances of a medical emergency due to heat.

Preventing Emergencies Due to Heat

When working in situations where the ambient temperatures and humidity are high, and especially in situations where protection levels A, B, or C are required, the site safety officer should:

- Ensure that all employees drink plenty of fluids (Gatorade or its equivalent);
- Ensure that frequent breaks are scheduled so overheating does not occur; and
- Revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e., 5:00 a.m. to 11:00 a.m. and 6:00 p.m. to nightfall).

When protective clothing is required, the suggested guidelines correlating ambient temperature and maximum wearing time per excursion are:

Ambient Temperature	Maximum Wearing Time per Excursion
Above 90 degrees F	15 minutes
85 to 90 degrees F	30 minutes
80 to 85 degrees F	60 minutes
70 to 80 degrees F	90 minutes

60 to 70 degrees F
50 to 60 degrees F

120 minutes
180 minutes

One method of measuring the effectiveness of an employee's rest-recovery regime is by monitoring the heart rate. The "Brouha guideline" is one such method and is performed as follows:

- Count the pulse rate for the last 30 seconds of the first minute of a 3-minute period, the last 30 seconds of the second minute, and the last 30 seconds of the third minute; and
- Double each result to yield beats per minute.

If the recovery pulse rate during the last 30 seconds of the first minute is 110 beats/minute or less, and the deceleration between the first, second, and third minutes is at least 10 beats/minute, then the work-recovery regime is acceptable. If the employee's rate is above the rate specified, a longer rest period will be required, accompanied by an increased intake of fluids.

Heat Emergencies

Heat Cramps. Heat cramps usually affect people who work in hot environments and perspire a great deal. Loss of salt from the body causes very painful cramps in leg and abdominal muscles. Heat cramps may also result from drinking iced water or other drinks either too quickly or in too large a quantity. The symptoms of heat cramps are:

- Painful muscle cramps in legs and abdomen;
- Faintness; and
- Profuse perspiration.

To provide emergency care for heat cramps, move the patient to a cool place. Give him or her sips of liquids such as Gatorade or its equivalent. Apply manual pressure to the cramped muscle. Move the patient to a hospital if there is any indication of a more serious problem.

Heat Exhaustion. Heat exhaustion also may occur in individuals working in hot environments and may be associated with heat cramps. Heat exhaustion is caused by the pooling of blood in the vessels of the skin. The heat is transported from the interior of the body to the surface by the blood. The skin vessels become dilated and a large amount of blood is pooled in the skin. This condition, plus the blood that is pooled in the lower extremities when in an upright position, may lead to an inadequate return of blood to the heart and eventual physical collapse. The symptoms of heat exhaustion are:

- Weak pulse;
- Rapid and usually shallow breathing;
- Generalized weakness;
- Pale, clammy skin;

- Profuse perspiration;
- Dizziness/faintness; and
- Unconsciousness.

To provide emergency care for heat exhaustion, move the patient to a cool place and remove as much clothing as possible. Have the patient drink cool water, Gatorade, or its equivalent. If possible, fan the patient continually to remove heat by convection, but do not allow chilling or overcooling. Treat the patient for shock and move him or her to a medical facility if there is any indication of a more serious problem.

Heat Stroke. Heat stroke is a profound disturbance of the heat-regulating mechanism and is associated with high fever and collapse. It is a serious threat to life and carries a 20% mortality rate. Sometimes this condition results in convulsions, unconsciousness, and even death. Direct exposure to sun, poor air circulation, poor physical condition, and advanced age (over 40) increase the chance of heat stroke. Alcoholics are extremely susceptible. The symptoms of heat stroke are:

- Sudden onset;
- Dry, hot, and flushed skin;
- Dilated pupils;
- Early loss of consciousness;
- Full and fast pulse;
- Deep breathing at first, followed by shallow or faint breathing;
- Muscle twitching, growing into convulsions; and
- Body temperature reaching 105 to 106 degrees F or higher.

When providing emergency care for heat stroke, remember that it is a life-threatening emergency. Transportation to a medical facility should not be delayed. Move the patient to a cool environment, if possible, and remove as much clothing as possible. Ensure an open airway. Reduce body temperature promptly by dousing the body with water or, preferably, by wrapping the patient in a wet sheet. If cold packs are available, place them under the arms, around the neck, at the ankles, or any place where blood vessels that lie close to the skin can be cooled. Protect the patient from injury during convulsions.

COLD STRESS PREVENTION AND TREATMENT

Cold temperatures are potentially hazardous, especially when work is conducted without appropriate precautions. The following sections describe cold stress prevention and the recognition and treatment of cold stress emergencies.

Preventing Emergencies Due to Cold Stress

When working in situations where the ambient temperature is low, especially if low temperatures are accompanied by windy conditions, personnel should use the following cold-stress prevention measures:

- Wear warm, dry, loose-fitting clothing that is preferably worn in layers. Outer clothing should be waterproof and windproof. Inner clothing should be capable of retaining warmth even when it is wet (e.g., wool or polypropylene) or have wicking capabilities (to draw moisture and perspiration away from the skin).
- Wear lined and insulated footwear and warm gloves or mittens.
- Alternately remove and don clothing layers as necessary to regulate body temperature and reduce excess perspiration.
- Drink warm fluids as often as desired.
- Take frequent breaks to provide for cold stress monitoring.

Cold Stress Emergencies

Hypothermia. Exposure to cold can cause the body's internal temperature to drop to a dangerously low level. Hypothermia occurs when a person's body loses heat faster than it can be produced. The body's normal deep-body temperature is approximately 98.6 degrees Fahrenheit. If body temperature drops to 95 degrees Fahrenheit, uncontrollable shivering may occur. If cooling continues, these other symptoms may occur:

- Vague, slow, slurred speech;
- Forgetfulness, memory lapses;
- Inability to use hands;
- Frequent stumbling;
- Drowsiness;
- Exhaustion, collapse;
- Unconsciousness; and
- Death.

Hypothermia impairs the judgment of the victim. Hypothermia is possible even in temperatures above freezing and can be prevented by remaining warm and dry and avoiding overexposure to the cold.

If a person shows symptoms of hypothermia, perform the following:

- Remove the victim from exposure to wet and cold weather.
- Remove wet clothing.
- If the victim is only mildly affected, provide warm drinks and dry clothing.
- If the victim is more seriously affected (clumsy, confused, unable to shiver), begin safe-warming procedures such as hugging, wrapping in dry blankets, and the use of warm objects such as hot water bottles or heat packs, and arrange for evacuation. Do not give the victim warm drinks until he or she exhibits a clear level of consciousness and appears to be warming up.

Frostbite. Frostbite occurs when body tissue freezes. Severe frostbite can lead to reduced circulation and the possible need for amputation. To prevent frostbite, maintain good circulation and keep extremities warm and dry. In extreme cold, it is important to prevent heat loss from as many areas of the body as possible. Exposed limbs and the head are major areas of heat loss.

Tall, thin people; those in poor physical condition; people with chronic diseases; heavy smokers; children; the elderly; and those who have been drinking alcohol are more susceptible to frostbite than other people due to poor circulation, poor production of body heat, or both.

There may be no pain or numbness experienced with gradual freezing of body tissues. While in the cold, it is important to test extremities for sensation and ensure that clothing is loose-fitting and warm. Exposed parts of the body should be inspected routinely. Just before freezing, skin becomes bright red. As freezing continues, small white patches will appear and the skin will become less elastic, often remaining pitted after it is touched or squeezed.

Serious freezing is most common in the feet because people are less aware of them, circulation and sensation are poorer, and warm footwear is difficult to obtain. Hands are usually the next to freeze. Exposed parts of the head will freeze less rapidly because they are conditioned to exposure and have a better blood supply.

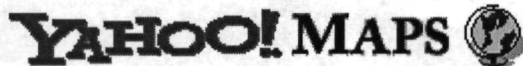
In very cold weather, avoid touching cold metal with bare body parts. In the event that this happens, release the skin gently using heat, warm water, or urine. Avoid handling gasoline, kerosene, or similar liquids which, when handled in cold weather, can cause immediate frostbite.

If a person shows symptoms of frostbite, consult a medical professional, if possible, and perform the following:

- Initiate rewarming only if subsequent refreezing is not a possibility (thawing and refreezing should always be avoided because this is very injurious to tissue). Rewarm body parts in water that is approximately 100 to 105

degrees Fahrenheit. Do not try to thaw the body parts using cold water, snow, or intense heat from fires or stoves. The whole body may be immersed in warm water if necessary.

- If a large portion of an extremity is frozen when rewarming is initiated, the deep body temperature may drop as cooled blood begins to circulate throughout the body. Provide warm liquids to alleviate this situation.
- Move the afflicted part gently and voluntarily during rewarming.
- Use pain medication if it is available. Rewarming can be acutely painful. After thawing is completed, a deep pain may persist for several days, depending on the severity of the frostbite. Pain may be a good sign as it indicates that nerve function is present.
- A dull purple color, swelling, or blisters indicate serious injury and the need for medical attention. Consult a medical professional.


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Hospital Route Map
 DU1501RZXX
 pg 1 of 1

The destination could not be found, so this is to the city center.

Starting From:

 720 south elmhurst
 Mt Prospect, IL 60056-3702

Arriving At:

 100 north river
 Des Plaines, IL 60016

Distance: Approximate Travel Time:

3.6 miles

7 mins

[Reverse Driving Directions](#)

Directions

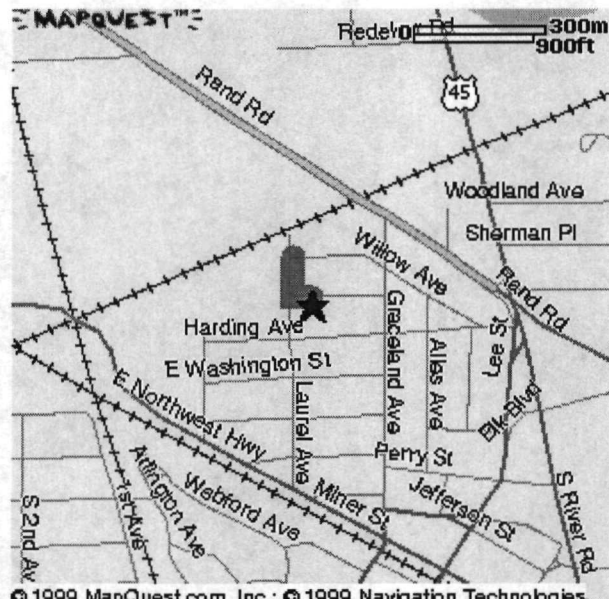
Miles

- | | |
|--|-----|
| 1. Start out going South on S ELMHURST RD/IL-83 towards W LONNQUIST BLVD by turning right. | 0.4 |
| 2. Turn LEFT onto IL-58. | 1.0 |
| 3. IL-58 becomes IL-58/E GOLF RD. Pass through 1 roundabout. | 1.3 |
| 4. Turn SLIGHT RIGHT onto RAND RD/US-12. | 0.6 |
| 5. Turn RIGHT onto GRACELAND AVE. | 0.1 |
| 6. Turn RIGHT onto WILLOW AVE. | 0.1 |
| 7. Turn LEFT onto LAUREL AVE. | 0.1 |
| 8. Turn LEFT onto EVERGREEN AVE. | 0.0 |



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Full Route



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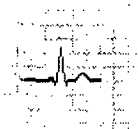
Destination

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The American Hospital Directory™

Now featuring AHA Annual Survey Data

Free Hospital Report

Hospital Characteristics

Hospital Characteristics are licensed from
Health Forum, An American Hospital Association Company.
Data are for the AHA Survey period ending 10/25/1999.

Please note that data may differ among various sources
due to differences in reporting periods, definitions of terms, etc.

Data from AHA Annual Survey Database, Copyright 1998-99, Health Forum, LLC, Chicago, Illinois



Powered by AHA Data™

Identification

(See other hospital information available in our [sample subscription report](#).)

Name and address: **HOLY FAMILY MEDICAL CENTER**
100 NORTH RIVER ROAD
DES PLAINES, IL 60016-1255

Medicare Provider Number: 140105

Type of Control: NONGOV'T NONPROFIT OTHER

Services Provided

No Medicare data about service information are available for this hospital.

Beds and Utilization Statistics

per the hospital's Medicare Cost Report for the period ending 12/31/1997

(See other utilization statistics in our [sample subscription report](#).)

	Available Beds	Inpatient Days
HOSPITAL (including swing beds)		
Routine Services	228	26,805
Special Care	18	3,555
Nursery	14	1,264
Total Hospital	260	31,624
SUBPROVIDERS & DISTINCT UNITS		
Skilled Nursing Facility	0	0
Nursing Facility	0	0
Other	0	0
TOTAL COMPLEX	260	31,624

Financial Statistics

From Cost Report files for the period ending 12/31/1997.

(See other financial information available in our [sample subscription report](#).)

Gross Patient Revenue	\$116,910,776	96.91
Non-Patient Revenue	\$3,728,672	3.09
Total Revenue	\$120,639,448	
Net Income (or Loss)	\$932,620	0.77

Inpatient Utilization Statistics

Taken from Medicare MedPAR files for the period ending 08/25/1999.

Data are excluded for categorizations of ten or fewer patients.

This report is consistent with HCFA Data Release policies.

(See other inpatient utilization information available in our [sample subscription report](#).)

Statistics by Medical Service

	Number Medicare Inpatients	Average Length of Stay	Average Charges	Medicare Case Mix Index (CMI)
Cardiology	758	4.00	\$11,041	0.9920
Cardiovascular Surg	45	6.60	\$38,034	3.1599
Gynecology	30	4.40	\$13,340	1.0797
Medicine	707	4.60	\$9,767	0.9160
Neurology	289	4.30	\$10,488	1.0226
Neurosurgery	18	10.60	\$40,758	2.8077
Oncology	72	4.70	\$11,763	1.2831
Orthopedics	374	4.90	\$14,464	1.4695
Psychiatry	89	6.10	\$6,158	0.6604
Pulmonology	433	6.70	\$19,031	1.7119
Surgery	256	8.20	\$25,435	2.4039
Urology	152	4.50	\$11,140	1.0660
Vascular Surgery	53	6.80	\$24,220	1.7904
Total	3,276	5.20	\$13,945	1.2926

Note: Medicare Case Mix index is based on the Medicare Prospective Payment System for the corresponding federal fiscal year.



DRG Benchmarking Study

Get the Latest Update to QuadraMed's Benchmarking Study:
utilization statistics and compliance indicators based on FY1997 MedPAR data

Outpatient Utilization Statistics

Taken from Medicare Standard Analytical files (Outpatient) for the year ending 12/31/1997.

Data are excluded for categorizations of ten or fewer patients.

This report is consistent with HCFA Data Release policies.

(See other outpatient utilization information available in our [sample subscription report](#).)

ORION

CONSULTING

An IMRglobal company

These statistics were prepared by IMRglobal - ORION, a foremost authority on the classification and analysis of outpatient information. Their strong technical expertise combined with in-depth health care knowledge can help you develop effective and efficient strategies for managed care, Medicare risk and APG/APC management.

Statistics for the Top 10 Ambulatory Patient Classifications (APCs)

APC Number (note 1)	APC Description	Percent of Total Charges	Number Patient Visits	Average Charge per Visit	National Average Charge
---------------------------	-----------------	--------------------------------	-----------------------------	--------------------------------	-------------------------------

668	Cataract Procedures with IOL Insert.	20.70	658	\$3,548	\$3,013
710	Computerized Axial Tomography.	19.40	3,016	\$723	\$851
700	Plain Film.....	5.10	4,990	\$116	\$133
957	Echocardiography..	3.80	1,273	\$333	\$322
781	Standard SPECT Nuclear Medicine.	3.60	316	\$1,286	\$990
426	Diagnostic Lower GI Endoscopy.	3.20	311	\$1,147	\$959
968	Vascular Ultrasound.	2.20	744	\$336	\$394
771	Standard Planar Nuclear Medicine.	2.10	834	\$283	\$506
427	Therapeutic Lower GI Endoscopy.	2.00	178	\$1,281	\$1,045
747	Diagnostic Ultrasound Except Vascular.	1.90	903	\$233	\$284
	All Other	36.00	14,146	\$286	\$0
	TOTAL		27,369		

Note 1: APC classifications are based on the FR 09/09/99 as modified through 06/30/99.

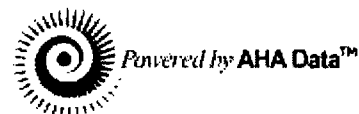
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To correct or update information about your hospital
please contact **Sara Pax, Manager of Business Development**



Your comments and suggestions are always appreciated.

Telephone Number: 87-QUADRAMED (877.823.7263)
Fax Number: 816.891.0705
Email: clientsupport@quadramed.com

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22 Pelican Way
San Rafael, CA 94901

Customer Support
(877) 823-7263

Job No kj5105

HAZARD EVALUATION OF CHEMICALS

PREPARATION DATE: 4/11/95

CHEMICAL NAME: Mercury

CAS NUMBER 7439-97-6

DOT NAME/ID NO: UN 2809

SYNONYMS: QUICK SILVER, METALLIC MERCURY

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: HG

MOLECULAR WEIGHT: 200.59

SPG/D: 13.53

SOLUBILITY: Insoluble

PHYSICAL STATE: Silvery heavy liquid.

FLAMMABLE LIMITS:

FLASH POINT:

VAPOR PRESSURE: 0.0012 mm Hg at 68F

FREEZING POINT: -38F

BOILING POINT: 357 C (675 F)

ODOR CHARACTERISTIC: Odorless

Incompatibilities: STRONG ACIDS, ACETYLENE, AMMONIA, CHLORINE DIOXIDE, AZIDES, CALCIUM (AMALGAN FORMATION), SODIUM
CABIDE, LITHOUM, RUBIDIUM, COPPER

BIOLOGICAL PROPERTIES

IDLH:

TLV-TWA : 0.05 mg/m3 Sk

PEL - TWA: 0.05 mg/m3 Sk

ODOR THRESHOLD: ---

HUMAN (LCLO):

RAT/MOUSE (LC50):

CARCINOGEN:

TERATOGEN: Yes

AQUATIC:

ROUTE OF EXPOSURE: Inh, Ing, Eye, Skin

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

Personal protection: Avoid skin contact with Mercury. Wear protective gloves and clothing. Wear chemical goggles and face shield. Respiratory Protection.

Gloves:

E = Excellent (> 8 hours); VG = Very Good (4 - 8 hrs); G = Good (1 - 4 hours); P = Poor (< 1 hour)

MONITORING RECOMMENDATIONS:

Monitoring:

HEALTH HAZARDS:

Acute Symptoms: Headache, cough, chest pain, nausea, can irritate the lungs, shortness of breath, fever

Chronic Symptoms: ---

FIRST AID:

FIRST AID-INHAL: Remove the person from exposure. Begin rescue breathing if breathing has stopped and CPR if heart action has stopped. Transfer promptly to a medical facility.

FIRST AID-EYE: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

FIRST AID-SKIN: Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of water.

DISPOSAL/WASTE TREATMENT:

DISPOSAL OF WASTE:

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: NICOR MERCURY

Date of Original SSP: 7/25/00

Date of Amendment: 9/5/00

Date of proposed new work: 9/6/00

TDD/Pan/Project Number: 505-0007-015
04150122XX

Added Activities and hazard evaluation: AIR MONITORING WILL BE CONDUCTED
IN NICOR SALVAGE YARDS & SCRAP FACILITIES ^{Identified by IEPA}
PHYSICAL HAZARDS SUCH AS SHARP METAL & PLASTIC,
TRIP & FALL OR USE OF HEAVY EQUIPMENT NEAR-BY WILL
BE PRESENT

911 Services available, local hospitals will be determined during field work
Added monitoring activities: AIR MONITORING AROUND SCRAP PILES &
SALVAGE YARDS & NICOR GENERAL FACILITIES.

Level of Protection: A B (X) C X D

Reason for up/downgrading: EXCEEDING Hg VAPOR ACTION LEVEL OF 0.05 mg/m³

PPE: BOOTSIES, NITRILE GLOVES, STEEL TOE SHOES, HARD HAT
APR WITH ADSORBENT CARTRIDGES IF LEVEL OF PROTECTION UPGRAD

Decons: REMOVAL OF BOOTSIES & GLOVES JUST PRIOR TO LEAVING
HOT ZONE. HOT ZONE WILL BE AREAS IN QUESTION AT FACILITIES.

Team Members

Responsibility

ERIC REUSCHER

DAVE MEUDREN

Team Leader ERIC REUSCHER

Safety Officer

Equipment	Quantity	Equipment	Quantity
<u>TELEONE Hg ANALYZER</u>	<u>1</u>	<u>LUMEX (provided by EPA)</u>	<u>1</u>
<u>BOOTSIES</u>	<u>NA</u>		
<u>NITRILE GLOVES</u>	<u>NA</u>		

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: ERIC REUSCHER Eric Reuscher

Date: 9/5/00

Approved by:

Date: 9/5/00

INSTRUCTIONS: This form is to be approved through normal channels and attached to the original plan.



ToxFAQs

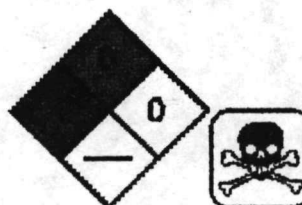
Mercury

CAS# 7439-97-6

April 1999

Mercury

Hg

[GIF Image](#)[XYZ File](#)

NFPA Label Key

[Material Safety Data Sheet
\(University of Utah\)](#)

Agency for Toxic Substances and Disease Registry

This fact sheet answers the most frequently asked health questions about mercury. For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to mercury occurs from breathing contaminated air, ingesting contaminated water and food, and having dental and medical treatments. Mercury, at high levels, may damage the brain, kidneys, and developing fetus. This chemical has been found in at least 714 of 1,467 National Priorities List sites identified by the Environmental Protection Agency.

What is mercury?

Mercury is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is a colorless, odorless gas.

Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also combines

with carbon to make organic mercury compounds. The most common one, methylmercury, is produced mainly by small organisms in the water and soil. More mercury in the environment can increase the levels of methylmercury that these small organisms make.

Metallic mercury is used to produce chlorine gas and caustic soda and also used in thermometers, dental fillings, and batteries. Mercury salts are used in skin-lightening creams and as antiseptic creams and ointments.

What happens to mercury when it enters the environment?

- Inorganic mercury (metallic mercury and inorganic mercury compounds) enters the air from mining ore deposits, burning coal and waste, and from manufacturing plants.
- It enters the water or soil from natural deposits, disposal of wastes, and volcanic activity..
- Methylmercury may be formed in water and soil by small organisms called bacteria.
- Methylmercury builds up in the tissues of fish. Larger and older fish tend to have the highest levels of mercury.

How might I be exposed to mercury?

- Eating fish or shellfish contaminated with methylmercury.
- Breathing vapors in air from spills, incinerators, and industries that burn mercury-containing fuels.
- Release of mercury from dental work and medical treatments.
- Breathing contaminated workplace air or skin contact during use in the workplace (dental, health services, chemical, and other industries that use mercury).
- Practicing rituals that include mercury.

How can mercury affect my health?

The nervous system is very sensitive to all forms of mercury. Methylmercury and metal vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

How likely is mercury to cause cancer?

There are inadequate human cancer data available for all forms of mercury. Mercuric chloride has caused increases in several types of tumors in rats and mice, while methylmercury increased kidney tumors in male mice. The EPA has determined that mercuric chloride and methyl mercury are possible human carcinogens.

How can mercury affect children?

Very young children are more sensitive to mercury than adults. Mercury in the mother's body passes

to the fetus and can pass to a nursing infant through breast milk. However, the benefits of breast feeding may be greater than the possible adverse effects of mercury in breast milk.

Mercury's harmful effects that may be passed from the mother to the developing fetus include brain damage, mental retardation, and incoordination, blindness, seizures, and an inability to speak. Children poisoned by mercury may develop problems of their nervous and digestive systems and kidney damage.

How can families reduce the risk of exposure to mercury?

Carefully handle and dispose of products that contain mercury, such as thermometers or fluorescent light bulbs. Do not vacuum up spilled mercury, because it will vaporize and increase exposure. If a large amount of mercury has been spilled, contact your health department. Teach children not to play with shiny, silver liquids.

Properly dispose of older medicines that contain mercury. Keep all mercury-containing medicines away from children.

Pregnant women and children should keep away from rooms where liquid mercury has been used.

Learn about wildlife and fish advisories in your area from your public health or natural resources department.

Is there a medical test to show whether I've been exposed to mercury?

Tests are available to measure mercury levels in the body. Blood or urine samples are used to test for exposure to metallic mercury and to inorganic forms of mercury. Mercury in whole blood or in scalp hair is measured to determine exposure to methylmercury. Your doctor can take samples and send them to a testing laboratory.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 2 parts of mercury per billion parts of drinking water (2 ppb).

The Food and Drug Administration (FDA) has set a maximum permissible level of 1 part of methylmercury in a million parts of seafood (1 ppm).

The Occupational Safety and Health Administration (OSHA) has set limits of 0.1 milligram of organic mercury per cubic meter of workplace air (0.1 mg/m^3) and 0.05 mg/m^3 of metallic mercury vapor for 8-hour shifts and 40-hour work weeks.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological profile for mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333
Phone: 1-888-422-8737
FAX: 404-639-6359

**U.S. Department of Health and Human Services
Public Health Service
Agency for Toxic Substances and Disease Registry**

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National Alert

A Warning About Continuing Patterns of Metallic Mercury Exposure

Metallic mercury is a hazardous chemical that can cause serious health problems. Children (especially very young children) and fetuses are most vulnerable. The Agency for Toxic Substances and Disease Registry (ATSDR), part of the U.S. Public Health Service, and the Environmental Protection Agency (EPA) are jointly issuing an alert to the general public. There is a continuing pattern of metallic mercury exposure in children and teenagers and in persons using certain folk medicines or participating in certain ethnic or religious practices.

It is important for the general public to understand that either short-term or long-term exposures to metallic mercury can lead to serious health problems. Human exposure to metallic mercury occurs primarily from breathing contaminated air. Other forms of mercury can be absorbed by drinking contaminated water, eating food (usually fish containing mercury), and from skin contact. At high levels, metallic mercury can cause effects on the nervous system and the developing fetus. Other forms of mercury can damage other organs. Even at low levels, metallic mercury can cause health problems. *Metallic mercury exposure can cause harm before symptoms arise.* Once released into the environment, mercury is very hard to clear up. If it is left unattended where exposures can occur, it can have dangerous effects on human health.

Incidents involving schoolchildren

In recent years, increasing numbers of metallic mercury spills and contamination involving schoolchildren have been reported:

In August 1994, more than 500 students in Belle Glade, Florida, were contaminated with metallic mercury after three children found 4 jars (totalling 55 pounds) of metallic-mercury in an abandoned van. The local hazardous waste materials team decontaminated the children (removed contaminated clothing and washed the metallic mercury from their skin). More than 20 families had to be evacuated while their homes were decontaminated.

In November 1994, college students at Florida Atlantic University in Boca Raton, Florida, removed metallic mercury from one of the school's laboratories. Students living in the dormitory were evacuated and housed in a local hotel while the dormitory was decontaminated.

In June 1996, metallic mercury was taken from a middle school in St. Joseph, Missouri, and used in and outside of school by a group of teenagers. Approximately 200 children were tested for mercury exposure; one child was hospitalized and another five underwent outpatient treatment to remove the mercury from their systems; 20 other children had mildly elevated mercury levels. Two homes and a car required extensive decontamination.

In October 1996, a high school in Oskaloosa, Kansas and a convalescent home in Johnson County, Kansas, were contaminated with metallic mercury; 52 students and an unknown number of residents of the home were tested. On the basis of ATSDR recommendations, the school was closed for a week until indoor air levels were safe. A month later, sampling at the school identified an increase in air mercury concentrations. The school was re-evaluated and additional clean-up was done as recommended by ATSDR.

In November 1996, ATSDR again assisted state health officials and EPA in evaluating contamination at a high school and a home in Dallas, Pennsylvania, near Wilkes-Barre. Four areas in the school had levels of metallic mercury contamination that required cleanup.

In March 1997, a middle school student on his way to school found metallic mercury on the street in front of his home in Montgomery County, Pennsylvania. The student took the metallic mercury to school and shared it with three to four classmates. Also, in March 1997 a broken mercury thermometer was discovered after school on the floor of a bathroom stall in the boys bathroom. One thermometer was confirmed missing from the science department's inventory. The school was found to be clear of contamination with the exception of one science laboratory and the carpet in a classroom. Two homes required decontamination.

Schoolteachers, particularly science teachers, and administrators need to be aware of students' interest in mercury, especially metallic mercury, and take steps to ensure that children are aware of its dangers and that any mercury kept in school is safely and securely contained.

Incidents involving religious practices

Persons who use metallic mercury in ethnic folk medicine and for

religious practices are at risk. Metallic mercury is sold under the name "*azogue*" in stores (sometimes called *botanicas*), which specialize in religious items used in *Esperitismo* (a spiritual belief system native to Puerto Rico), *Santeria* (a Cuban-based religion that venerates both African deities and Catholic saints), and *voodoo*.

The use of *azogue* in religious practices is recommended in some Hispanic communities by family members, spiritualists, card readers, and *santeros*. Typically, *azogue* is carried on one's person in a sealed pouch prepared by a spiritual leader or sprinkled in the home or automobile. Some *botanica* owners suggest mixing it in bath water or perfume and placing it in devotional candles.

General facts

The following are general facts about metallic mercury and its risks, as well as information about how people can protect themselves from exposure and resulting health effects.

What is mercury and how is it used?

Mercury occurs naturally in the environment in several forms. Metallic Mercury is the liquid form used in thermometers. Mercury is also used in other common consumer products such as fluorescent light bulbs, barometers, medical equipment such as blood pressure measurement instruments, and mercury switches in children's sneakers that light up. This alert concentrates on metallic mercury, but hazards are also associated with other types. Of these, the most common is methyl mercury contamination of fish.

How could I be exposed to mercury?

In the previously described school-associated cases, children were unaware of the dangers involved in exposing themselves and their families to this deadly poison. Adults are also often unaware of the hazards associated with mercury; some have even brought it home from work for children to play with. Just one-half teaspoon of mercury spilled in the home can be dangerous.

Adults using certain folk medicines or participating in certain religious or ethnic practices may also expose themselves and their families to metallic mercury's effects. Because metallic mercury vaporizes into the air at room temperatures, it presents an immediate health risk to anyone spending a significant amount of time in a room where metallic mercury is sprinkled or spilled onto the floor, or where opened containers of metallic mercury are present. Very small amounts of metallic mercury (for example, a few drops) can raise air concentrations to levels that may be harmful to health.

How does mercury affect health?

At high levels, metallic mercury can cause effects on the nervous system and the developing fetus. Other forms of mercury can damage other organs. Even at low levels, metallic mercury can cause health problems. Mercury exposure can begin to cause harm before symptoms arise. Once symptoms do arise, health problems related to metallic mercury poisoning can include tremors, changes in vision or hearing, insomnia, weakness, difficulty with memory, headache, irritability, shyness and nervousness, and a health condition called acrodynia.

Pregnant women and their fetuses are especially vulnerable to the toxic effects of metallic mercury because it readily passes from the placenta to the fetus. Mercury may accumulate in higher concentrations in the unborn baby than in the mother. Young children, who often play on the floor where metallic mercury may have been spilled, are particularly at risk for effects on the central nervous system. Mercury vapors are readily absorbed into the bloodstream from the lungs, and the human central nervous system, which is still developing during the first few years of life, may become damaged.

Health effects can result from short-term or long-term exposure. The body gets rid of mercury through the urine and feces. Removal of this substance from the body can take up to several months after exposure. Acrodynia is characterized by itching, swelling, and flushing; pink-colored palms and soles of the feet; excessive perspiration; rashes; irritability; fretfulness; sleeplessness; joint pains and weakness. Children exposed to metallic mercury for long periods may have trouble learning in school. When mercury levels in the body are extremely high, "chelation" therapy is necessary. Chelation therapy involves putting a chemical into the bloodstream; the chemical combines with the mercury to aid in its removal from the body.

Prevention is the key to avoiding poisoning in homes, schools, and families.

What is mercury contamination and how can I prevent it?

First, avoid using metallic mercury. Appropriate substitutes are available for nearly all uses of metallic mercury. Therefore, be sure you need to use it. If not, make arrangements to safely dispose of whatever metallic mercury you might have. If you do need to use metallic mercury, make sure it is safely stored in a leakproof container. Keep it in a secure space (e.g., a locking closet) so that

others cannot easily get it. Use of metallic mercury in a controlled environment helps to reduce the risk that contamination will occur.

Mercury contamination results from exposure through the air, water, food, soil, or direct contact. Exposure to metallic mercury occurs when it is not stored in a closed container. Contamination may include the spilling of metallic mercury on clothes, furniture, carpet, floors, walls, the natural environment, and even the human body. Metallic mercury and its vapors are extremely difficult to remove from such items as clothes, furniture, carpet, floors, and walls. The vapors will also accumulate in walls and other structures in contaminated rooms. The contamination can remain for months or years, posing a risk to exposed individuals. The use of metallic mercury in a home or apartment not only poses a threat to persons currently residing in that structure, but also to those who subsequently occupy that dwelling and are unaware of the past mercury use.

Can I clean up mercury with a vacuum cleaner?

Never use a vacuum cleaner. Using a vacuum cleaner causes metallic mercury to vaporize in the air, creating greater health risks. It also ruins the vacuum cleaner.

Can electronic equipment collect mercury vapors?

Metallic mercury vapors can accumulate in electronic equipment, especially computers. When the computer is turned on, the mercury revaporizes. This cycle of metallic mercury collecting and vaporizing from computers has been seen in several incidents in schools.

What should I do to keep my home safe?

Metallic mercury is used in a variety of household and industrial items including thermostats, fluorescent light bulbs, barometers, glass thermometers, and some blood pressure machines. Care must be taken in handling and disposing of all items in the home that contain metallic mercury.

First, **do NOT** try to vacuum or heat the metallic mercury in any way. Mercury vapors are very dangerous and are virtually undetectable. Avoid breathing mercury dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing. If you feel you have been exposed directly to metallic mercury, wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Provide as much clean air as possible.

For example, if a thermometer breaks, remove children from the

area. Clean up the bead of metallic mercury by carefully rolling it onto a sheet of paper or sucking it up with an eye dropper. After picking up the metallic mercury, put it into a bag or airtight container. The paper or eye dropper should also be bagged and disposed of properly according to guidance provided by environmental officials or your local health department. Try to ventilate the room to the outside and close off from the rest of the home. Use fans for a minimum of one hour to speed the ventilation. If larger amounts of metallic mercury are found (for example, a jar), make sure that the metallic mercury is in an airtight container and call your local health department for instructions in how to safely dispose of it. If the larger amount is spilled, leave the area and contact your local health department and fire authorities. *Do not simply throw it away, but instead seek professional guidance.*

ATSDR and EPA do not recommend the use of uncontained metallic (liquid) mercury (that is, mercury not properly enclosed in glass as it is in thermometers) in homes, automobiles, day care centers, schools, offices, and other public buildings.

Important Telephone Numbers

- Agency for Toxic Substances and Disease Registry (ATSDR) Emergency Response Hotline (24 hours): (404) 639-0615
- ATSDR General Information: 1-800-447-1544
- National Response Center: 1-800-424-8802
- Superfund Information Hotline: 1-800-424-9346
- You may also call your local health department

For more information, contact:

David Barry
Chief, ATSDR Emergency Response Section
(404) 639-6360
Email: DMB4@cdc.gov

Related Information

ATSDR ToxFAQs: Mercury

EPA Press Release - July 11, 1997
